CLAIMS

1. A lineariser for reducing distortion of the output signal which a signal handling means produces in response to an input signal, the lineariser comprising means for extracting a portion of the input signal, means for modifying the extracted signal to create non-linear components of reduced frequency therein, means for generating digitally a distortion signal from a delivered signal which is the modified signal and means for combining the distortion signal with the input signal.

2. A lineariser according to claim 1, wherein the modifying means comprises means for squaring the extracted signal.

3. A lineariser according to claims 1 or 2, wherein the combining means comprises means for mixing the distortion signal into the input signal.

4. A lineariser for reducing distortion of the output signal which a signal handling means produces in response to an analogue RF input signal, the lineariser comprising means for extracting a portion of the input signal, means for generating digitally a distortion signal from a delivered signal which is the extracted signal and means for mixing the distortion signal into the input signal.

5. A lineariser according to any preceding claim, wherein the distortion generating means comprises storage means, wherein the storage means is addressed by values of the delivered signal to responsively output corresponding values for the distortion signal.

6. A lineariser according to any preceding claim, wherein the distortion generating means comprises means for generating a number of distortion components which are susceptible of independent control.

7. A lineariser according to claim 6, wherein the distortion generating means comprises means for splitting at least one distortion component into orthogonal components, each orthogonal component being susceptible of independent control.

8. A lineariser according to any preceding claim, wherein the distortion generating means comprises means for adding a dc signal into the distortion signal.

9. A lineariser according to any preceding claim, wherein the distortion generating means comprises means for multiplying the delivered signal with itself repeatedly.

10. A lineariser according to claim 9, wherein the distortion generating means produces a number of components and further comprises means for removing lower order components appearing in at least one of the components.

11. A lineariser according to any one of claims 3 to 10, wherein the mixing means comprises means for splitting the input signal into orthogonal components.

12. A lineariser according to claim 11, wherein the mixing means mixes the distortion signal into one of the orthogonal input signal components.

13. A lineariser according to claims 11 or 12, wherein the mixing means mixes a dc component into one of the orthogonal input signal components.

14. A lineariser according to claim 11, wherein the distortion signal comprises two orthogonal components and the mixing means mixes each orthogonal signal component into a respective input signal component.

15. A lineariser according to any preceding claim, further comprising means for conditioning the signal input to the distortion generating means so that it maintains a substantially constant amplitude.

16. A lineariser according to any preceding claim, further comprising means for monitoring the amplitude of the extracted signal and determining whether to place the lineariser in an operative condition.

17. A lineariser according to any preceding claim, further comprising control means for adjusting a parameter of the distortion signal.

18. A lineariser according to claim 17, wherein the control means uses a feedback signal derived from the output signal to determine the adjustments to the distortion signal.

19. A lineariser according to claim 17 or 18, wherein the distortion signal comprises a number of components and the control means is capable of exerting independent control over at least one of them.

20. A lineariser according to any of claims 17 to 19, wherein the parameter adjusted by the control means is amplitude.

21. A lineariser according to any one of claims 17 to 20, wherein the control means generates at least one non-linear component of the signal input to the distortion generating means for correlation with the feedback signal to produce signals to control parameters of the distortion signal or components thereof.

22. A lineariser according to any one of claims 17 to 20, wherein the control means divides the signal input to the distortion generating means into components and correlates them with the feedback signal to produce signals to control parameters of the distortion signal or components thereof.

23. A lineariser according to any one of claims 17 to 20, wherein the control means divides the signal input to the distortion generating means into components and determines their amplitude in order to produce signals to control parameters of the distortion signal or components thereof.

24. A lineariser according to any preceding claim, wherein the signal handling means is amplifying means.

25. A lineariser substantially as hereinbefore described with reference to any of Figures 1 to 10.

26. A method of reducing distortion of the output signal which a signal handling means produces in response to an input signal, the method comprising extracting a portion of the input signal, modifying the extracted signal to create non-linear components of reduced frequency therein, generating digitally a distortion signal from a delivered signal which is the modified signal and combining the distortion signal with the input signal.

27. A method according to claim 26 wherein the modifying step comprises squaring the extracted signal.

28. A method according to claim 26 or 27, wherein the combining step comprises mixing the distortion signal into the input signal.

29. A method of reducing distortion of the output signal which a signal handling means produces in response to an analogue RF input signal, the method comprising extracting a portion of the input signal, generating digitally a distortion signal from a delivered signal which is the extracted signal and mixing the distortion signal into the input signal.

30. A method according to any one of claims 26 to 29, wherein the distortion generating step comprises addressing a storage means by values of the delivered signal to responsively output corresponding values for the distortion signal.

31. A method according to any one of claims 26 to 30, wherein the distortion generating step comprises generating a number of distortion components which are susceptible of independent control.

32. A method according to claim 31, wherein the distortion generating step comprises splitting at least one distortion component into orthogonal components, each orthogonal component being susceptible of independent control.

33. A method according to any one of claims 26 to 32, wherein the distortion generating step comprises adding a dc signal into the distortion signal.

34. A method according to any one of claims 26 to 33, wherein the distortion generating step comprises multiplying the delivered signal with itself repeatedly.

35. A method according to claim 34, wherein the distortion generating step produces a number of components and further comprises removing lower order components appearing in at least one of the components.

36. A method according to any one of claims 28 to 35, wherein the mixing step comprises splitting the input signal into orthogonal components.

37. A method according to claim 36, wherein the mixing step comprises mixing the distortion signal into one of the orthogonal input signal components.

38. A method according to claim 36 or 37, wherein the mixing step comprises mixing a dc component into one of the orthogonal input signal components.

39. A method according to claim 36, wherein the distortion signal comprises two orthogonal components and the mixing step comprising mixing each orthogonal distortion signal component into a respective input signal component.

40. A method according to any one of claims 26 to 39, further comprising conditioning the signal used to generate the distortion signal in the distortion generating step so that it maintains a substantially constant amplitude.

41. A method according to any one of claims 26 to 40, further comprising monitoring the amplitude of the extracted signal and determining whether to subject the output signal to the distortion reduction method.

42. A method according to any one of claims 26 to 41, further comprising a control step of adjusting a parameter of the distortion signal.

43. A method according to claim 42 wherein the control step uses a feedback signal derived from the output signal to determine the adjustments to the distortion signal.

44. A method according to claim 42 or 43, wherein the distortion signal comprises a number of components and the control step comprises exerting independent control over at least one of them.

45. A method according to any one of claims 42 to 44, wherein the parameter adjusted by the control step is amplitude.

46. A method according to any of one of claims 42 to 45, wherein the control step comprises generating at least one non-linear component of the signal used to generate the distortion signal in the distortion generating step for correlation with the feedback signal to produce signals to control parameters of the distortion signal or components thereof.

47. A method according to any one of claims 42 to 45, wherein the control step divides the signal used to generate the distortion signal in the distortion generating step into components and correlates them with the feedback signal to produce signals to control parameters of the distortion signal or components thereof.

48. A method according to any one of claims 42 to 45, wherein the control step divides the signal used to generate the distortion signal in the distortion generating step into components and determines their amplitude in order to produce signal to control parameters of the distortion signal or components thereof.

49. A method according to claim 26 to 48, wherein the signal handling means is amplifying means.

50. A method substantially as hereinbefore described with reference to any one of Figures 1 to 10.